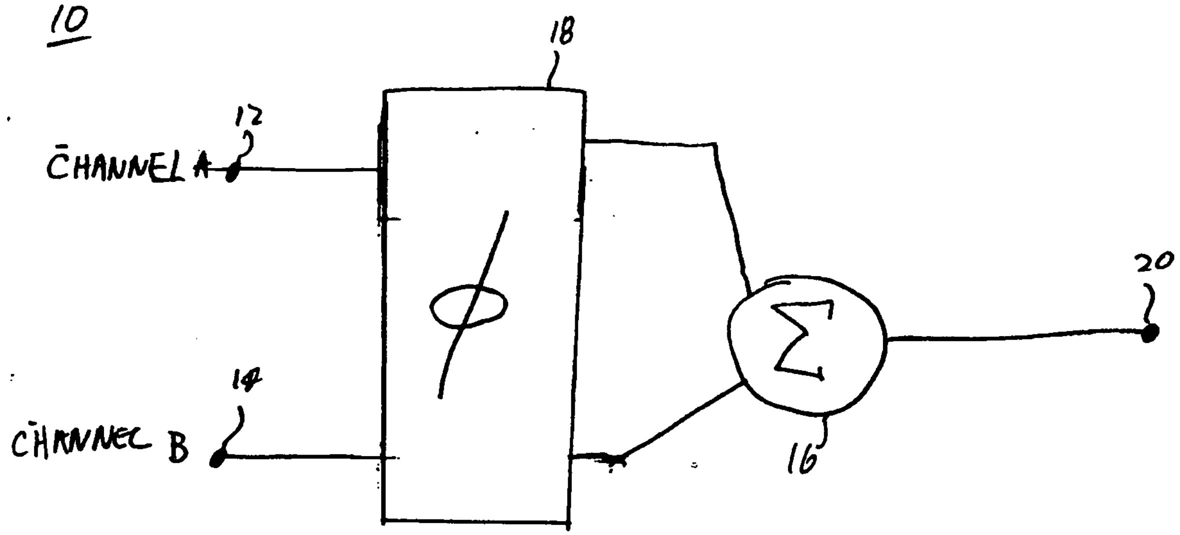

FIG. 1

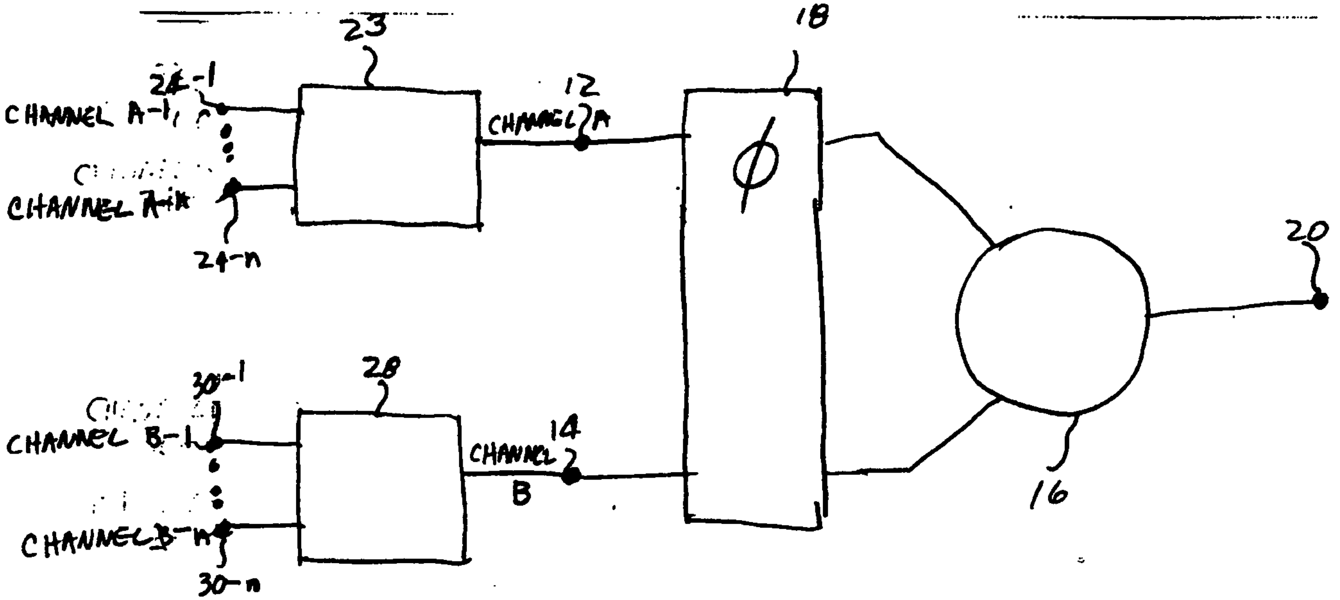
23
24-1
CHANNEL A-1
CHANNEL A-n
24-n
12
CHANNEL A
18
ϕ
16
20
28
30-1
CHANNEL B-1
CHANNEL B-n
30-n
14
CHANNEL B

FIG. 2a

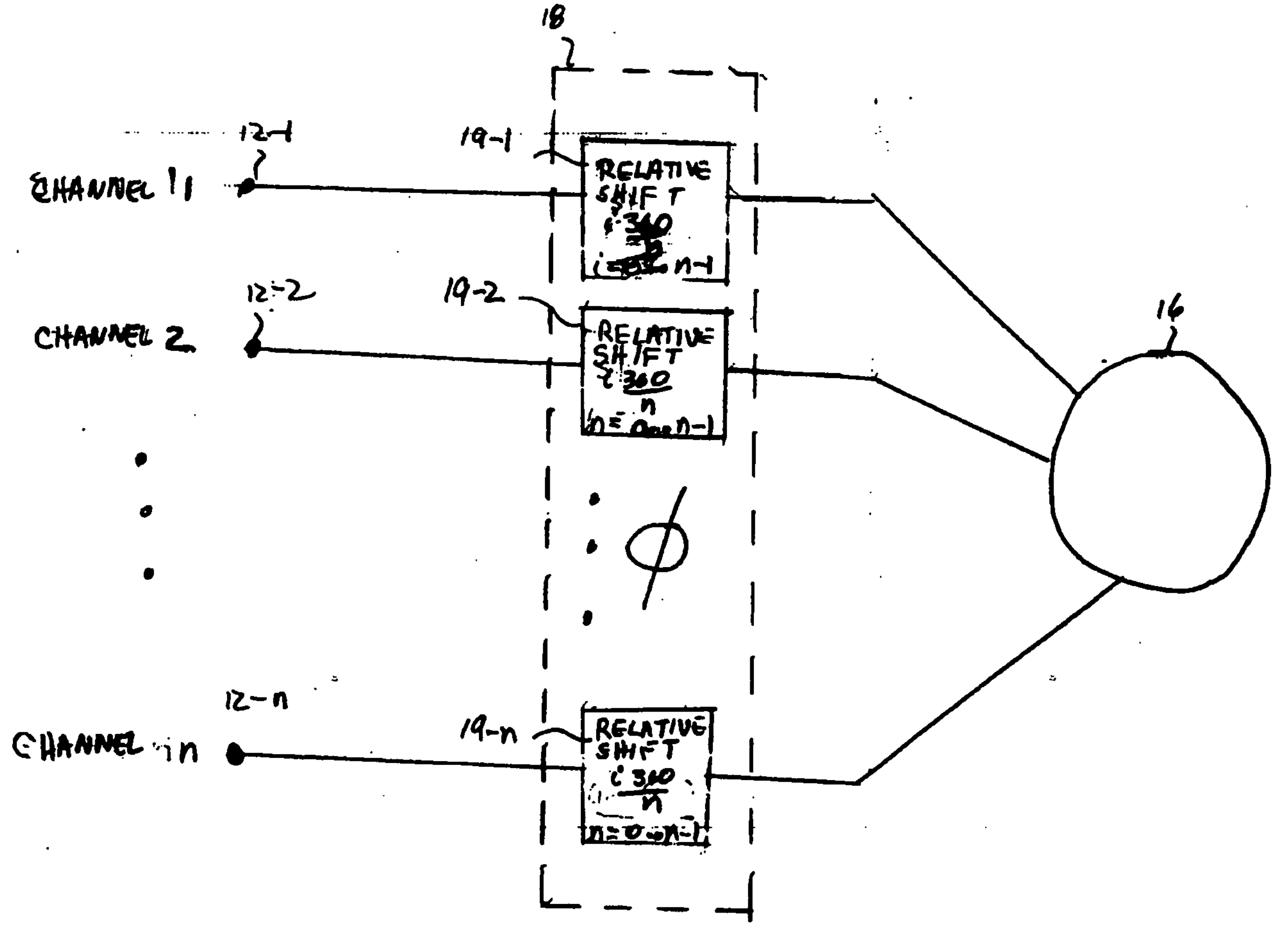
18
12-1
CHANNEL 1
12-2
CHANNEL 2
12-n
CHANNEL n
19-1
RELATIVE SHIFT
i·360/n
(i=0…n-1)
19-2
RELATIVE SHIFT
i·360/n
(n=0…n-1)
ϕ
19-n
RELATIVE SHIFT
i·360/n
n=0…n-1
16

FIG. 2b

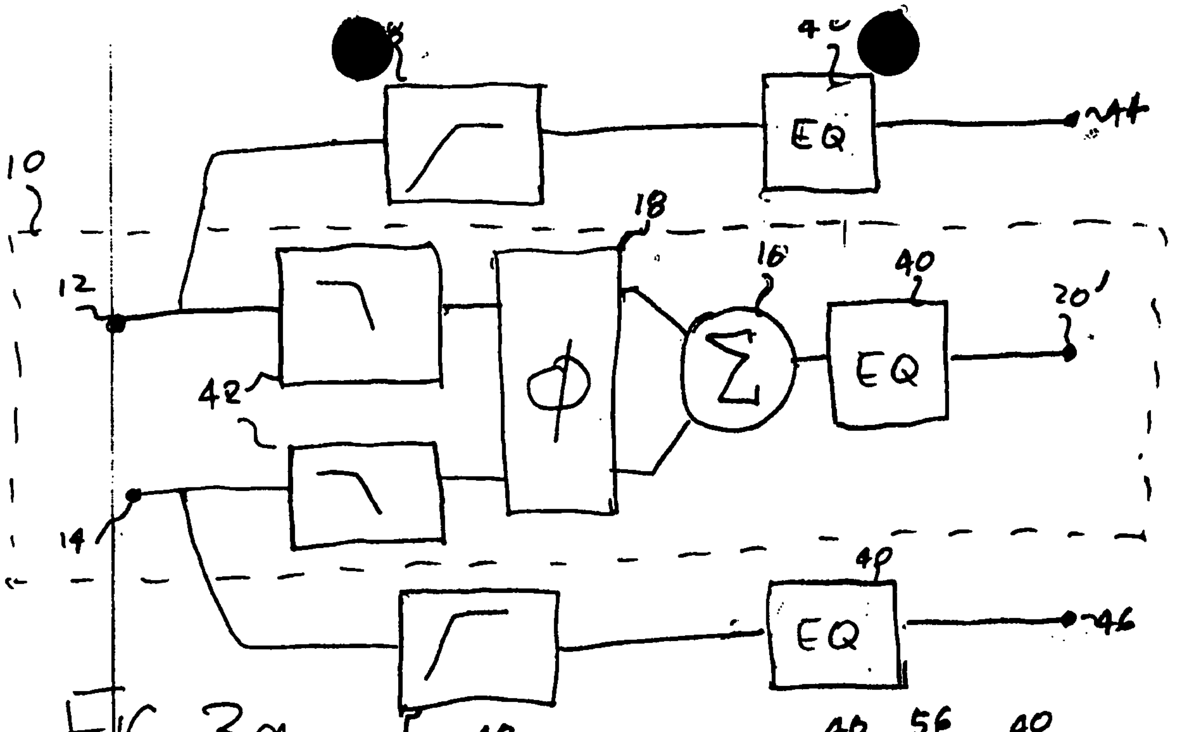

FIG. 3a

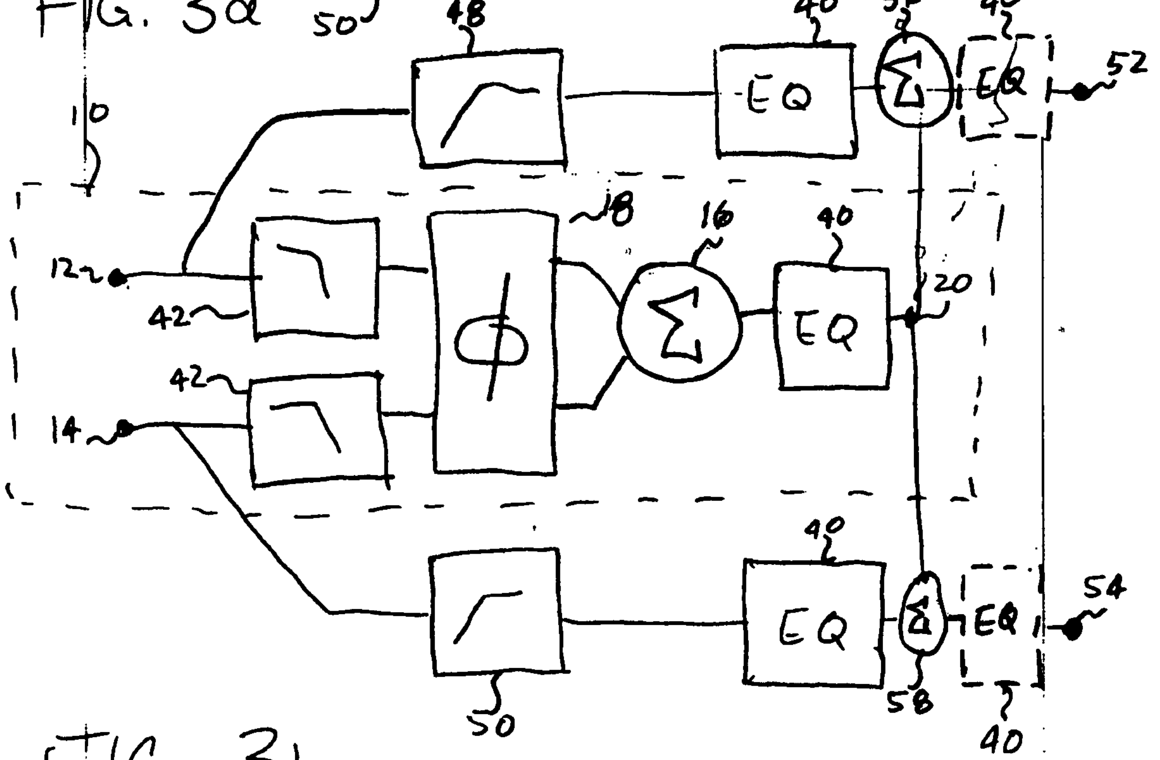

FIG. 3b

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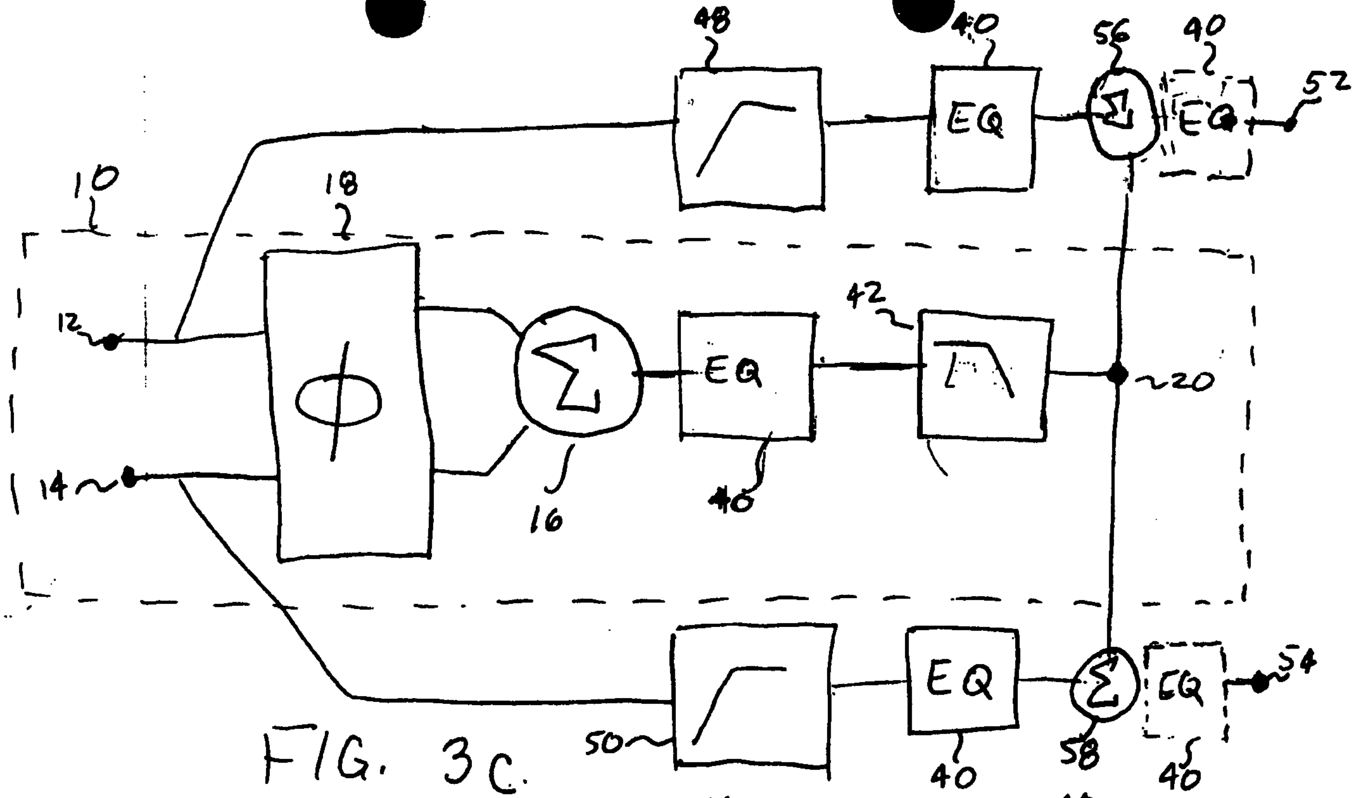

48
40
EQ
56
Σ
40
EQ
52
10
18
12
14
Σ
16
EQ
40
42
20
50
EQ
40
Σ
58
EQ
40
54

FIG. 3c.

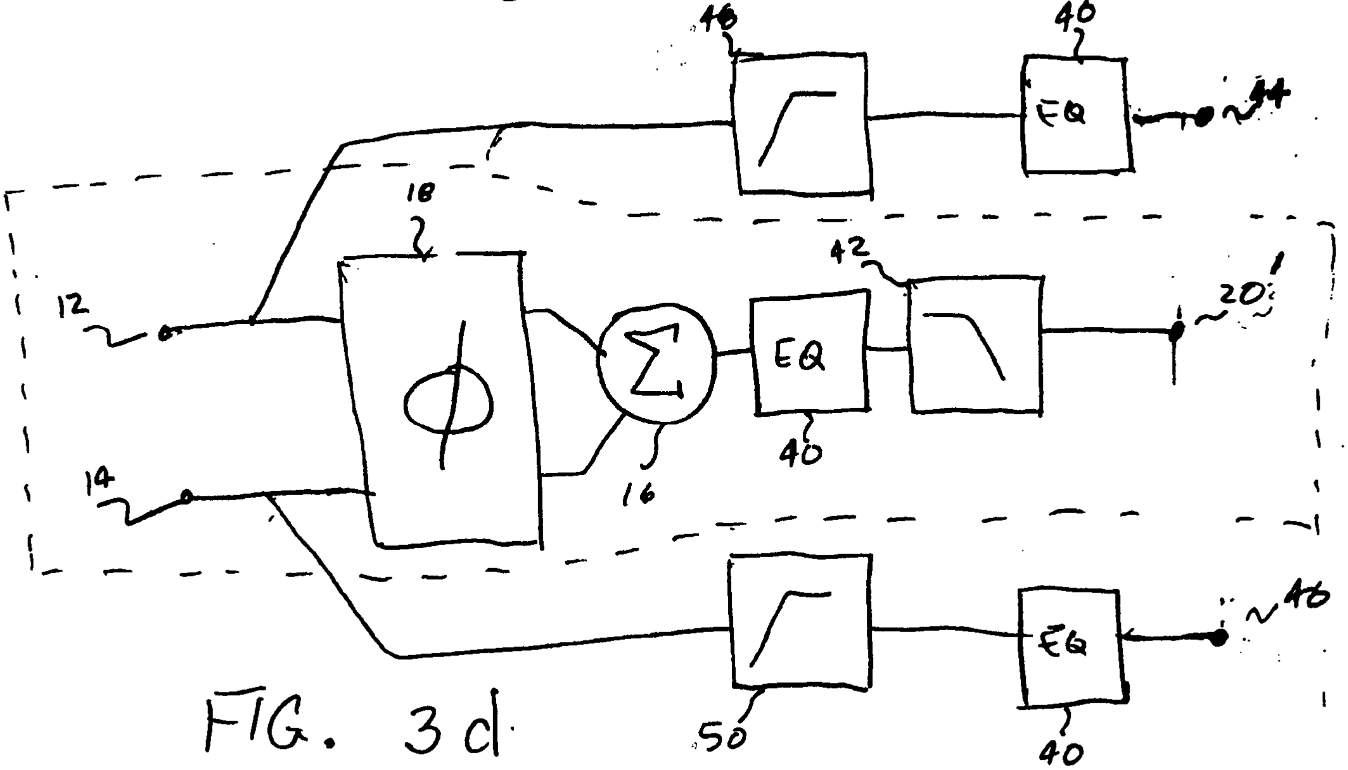

48
40
EQ
44
18
12
14
Σ
16
EQ
40
42
20'
50
EQ
40
46

FIG. 3d

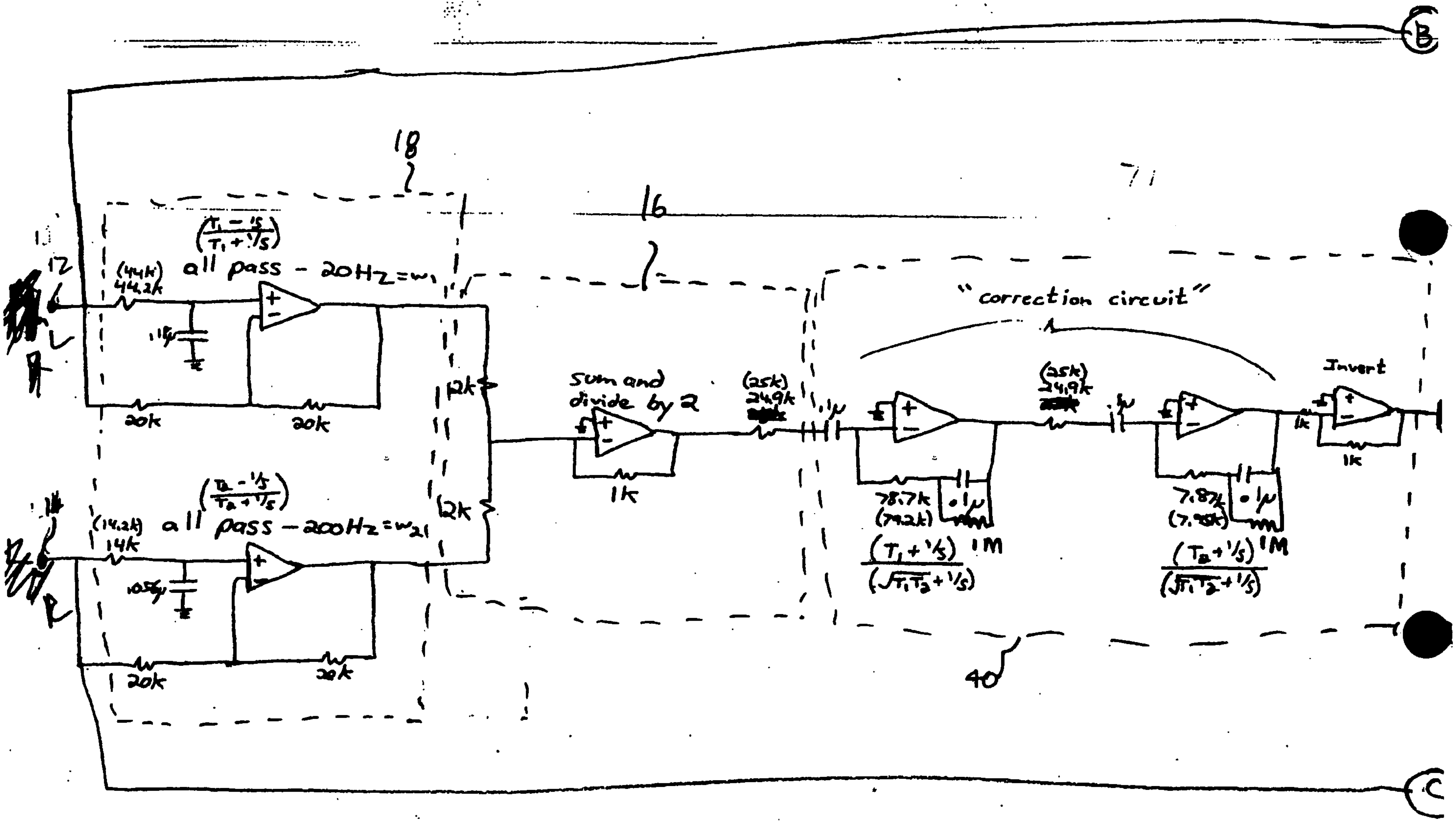

B
18
16
71
12
L
R
$\left(\frac{T_1 - 1/s}{T_1 + 1/s}\right)$
(44k)
44.2k
all pass - 20Hz = w_1
.1µ
20k
20k
$\left(\frac{T_2 - 1/s}{T_2 + 1/s}\right)$
(14.2k)
14k
all pass - 200Hz = w_{21}
.056µ
20k
20k
12k
12k
sum and divide by 2
1k
(25k)
24.9k
.1µ
"correction circuit"
78.7k
(79.2k)
.1µ
1M
$\frac{(T_1 + 1/s)}{(\sqrt{T_1T_2} + 1/s)}$
(25k)
24.9k
.1µ
7.87k
(7.92k)
.1µ
1M
$\frac{(T_2 + 1/s)}{(\sqrt{T_1T_2} + 1/s)}$
Invert
1k
1k
40
C

FIG. 4a

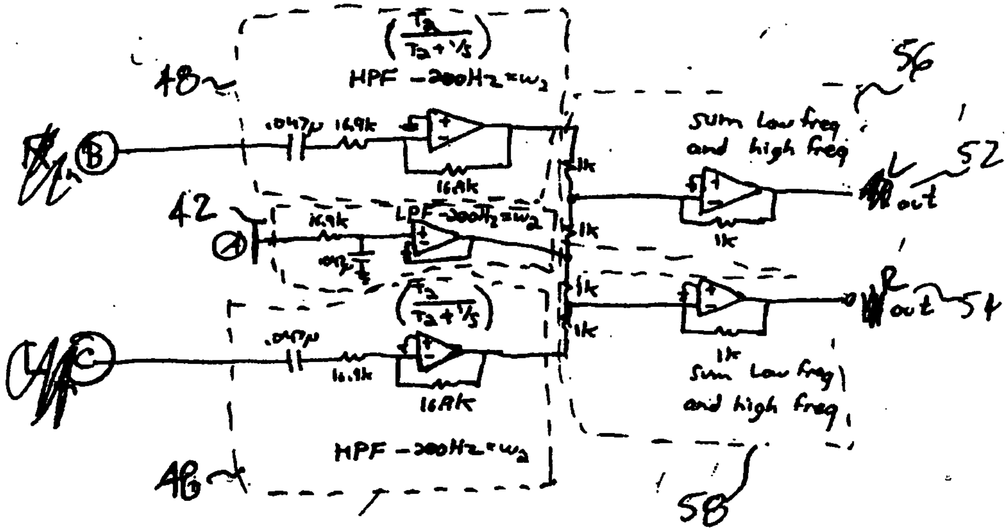
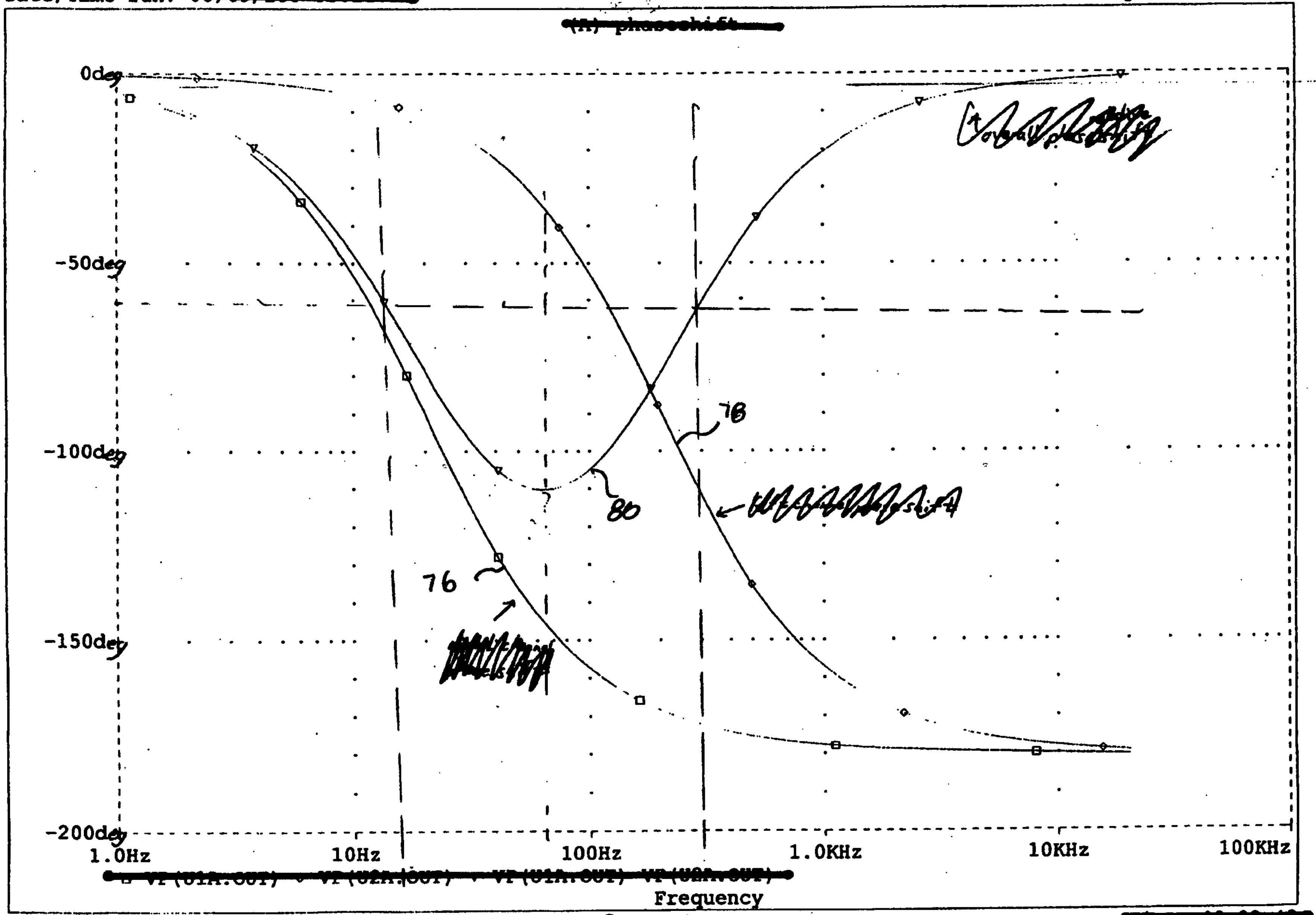

48
$\left(\frac{T_2}{T_2+1/s}\right)$
HPF -200Hz = w2
.047µ
16.9k
16.9k
B
42
A
16.9k
LPF -200Hz = w2
.047µ
C
$\left(\frac{T_2}{T_2+1/s}\right)$
.047µ
16.9k
16.9k
HPF -200Hz = w2
48
1k
1k
1k
1k
sum low freq and high freq
56
out
52
1k
out
54
1k
sum low freq and high freq
58

FIG. 4b

~~C:\Program Files\MSim_8\Projects\phaseshift.sch~~

~~Date/Time run: 08/09/100 08:21:52~~ ~~Temperature: 27.0~~



~~Date: August 09, 2000~~ ~~Page 1~~ ~~Time: 08:23:49~~

FIG. 5a

~~MAGNITUDE RESPONSE AT NODE "D" OF FIG. 4A~~

~~MAGNITUDE RESPONSE OF FIGURE 4A~~

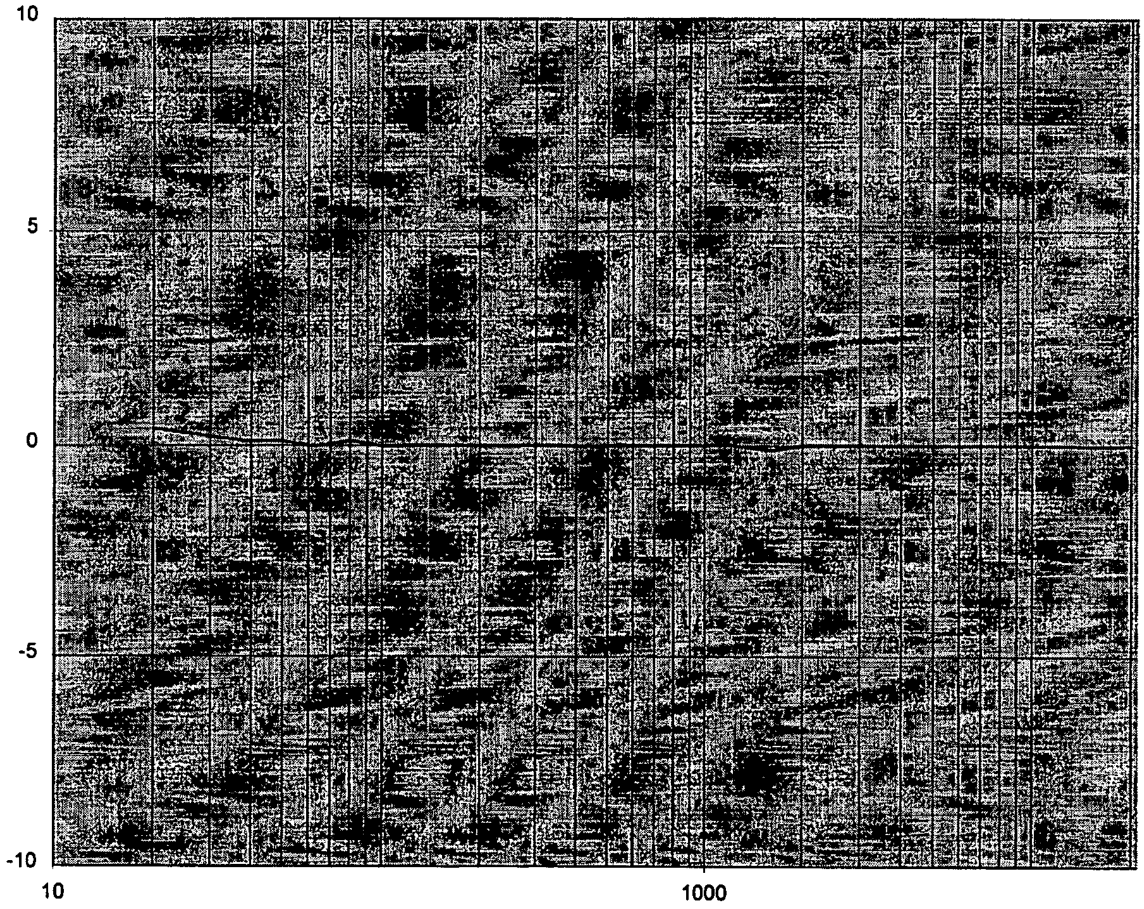


FIG. 5b

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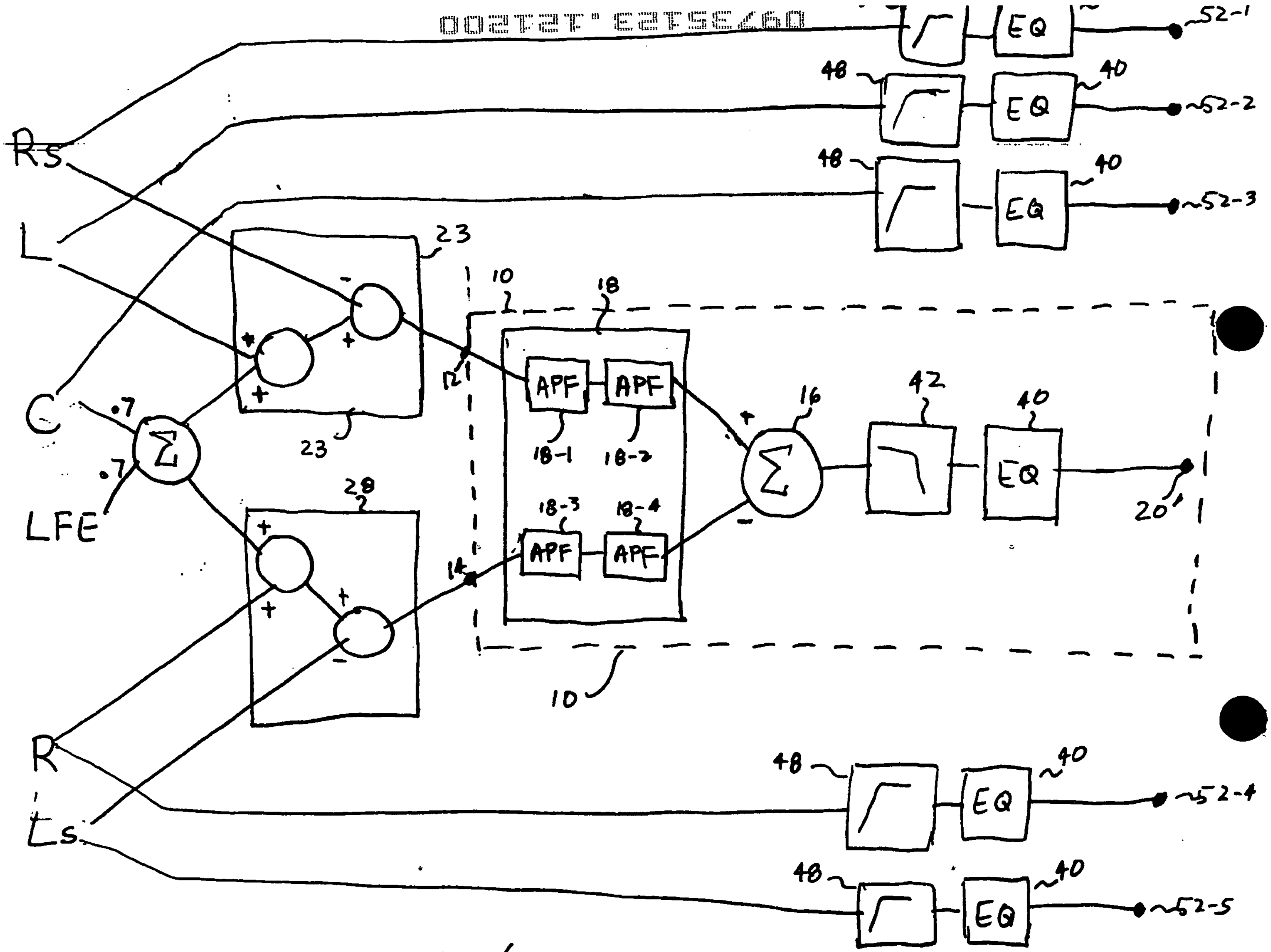
Rs
L
C
LFE
R
Ls
.7
.7
Σ
23
23
28
+
-
10
12
14
18
APF
18-1
18-2
18-3
18-4
16
42
40
EQ
20
10
48
52-1
52-2
52-3
52-4
52-5

FIG. 6

~~NORMALIZED RELATIVE PHASE-DIFFERENCE OF ALL-PASS NETWORKS REALIZED BY DIGITAL SIGNAL PROCESSING MEANS~~

~~NORMALIZED RELATIVE PHASE DIFFERENCE OF ALL-PASS-NETWORKS~~

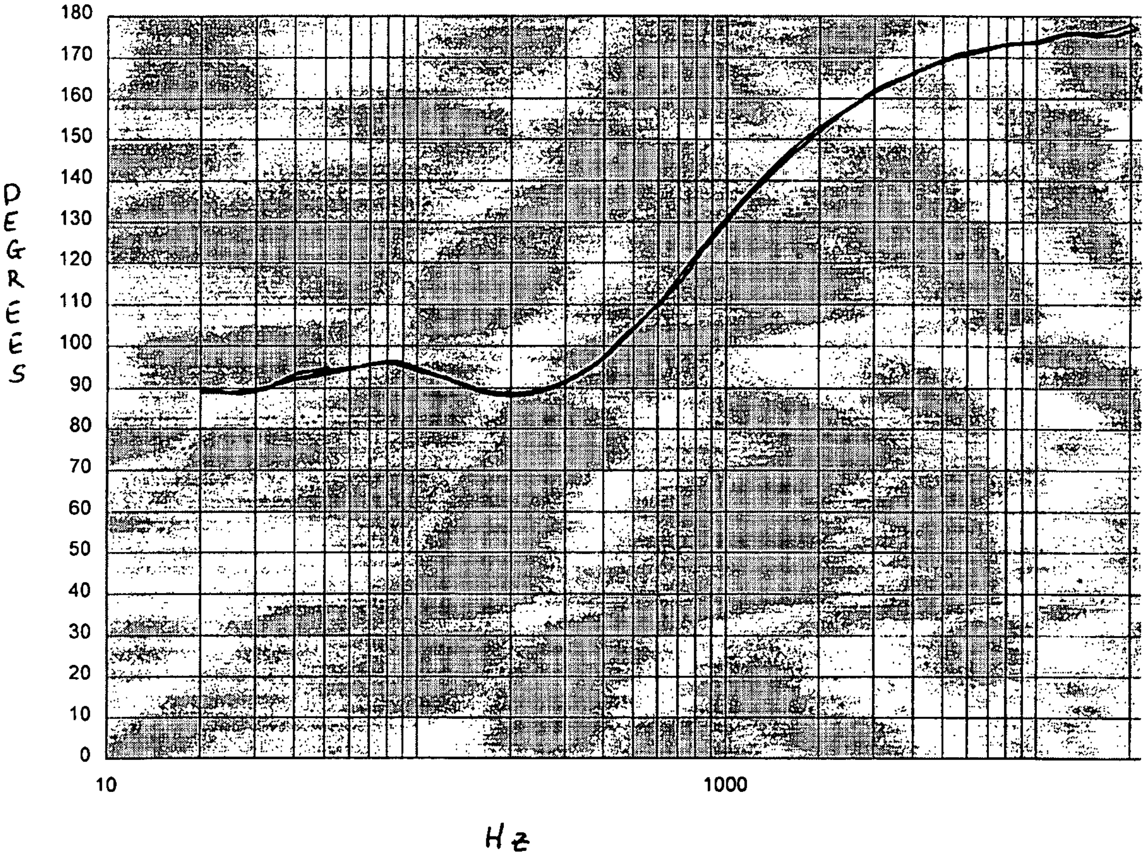

FIG. 7a

09735123 .121200

~~MAGNITUDE RESPONSE OF DIFFERENTIALLY COMBINED ALL-PASS NETWORKS REALIZED BY DIGITAL SIGNAL PROCESSING MEANS~~

~~MAGNITUDE RESPONSE OF DIFFERENTIALLY COMBINED ALL-PASS NETWORKS~~

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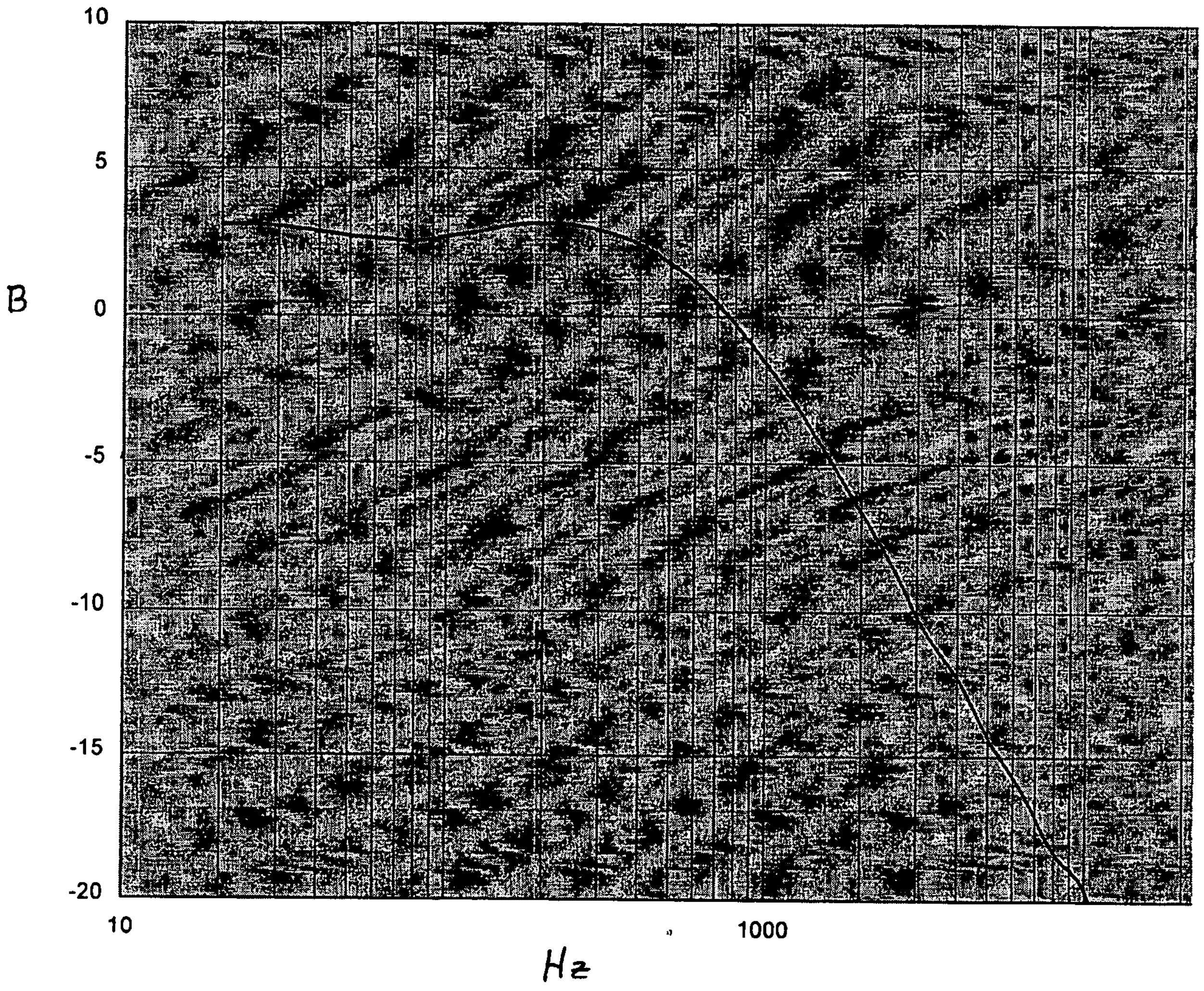

FIG. 7b

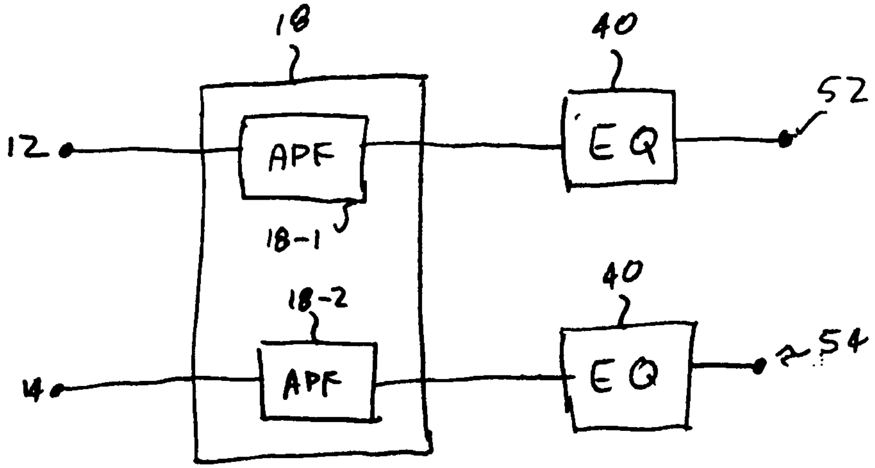

FIG. 8a

~~RELATIVE PHASE DIFFERENCE OF ALL-PASS NETWORKS GIVEN IN OEM PROJECT~~

~~RELATIVE PHASE DIFFERENCE~~

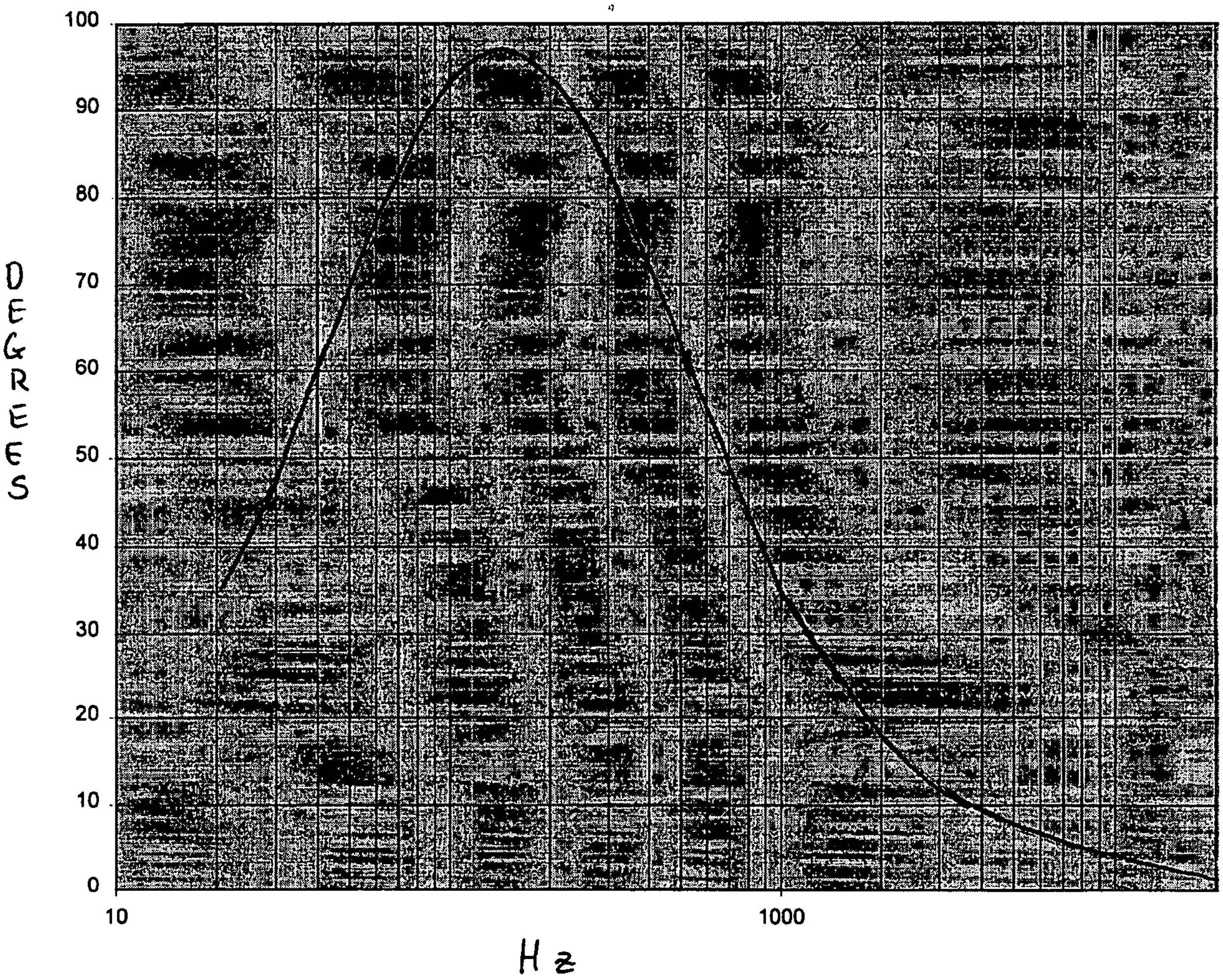

FIG. 8b

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09735123.121200

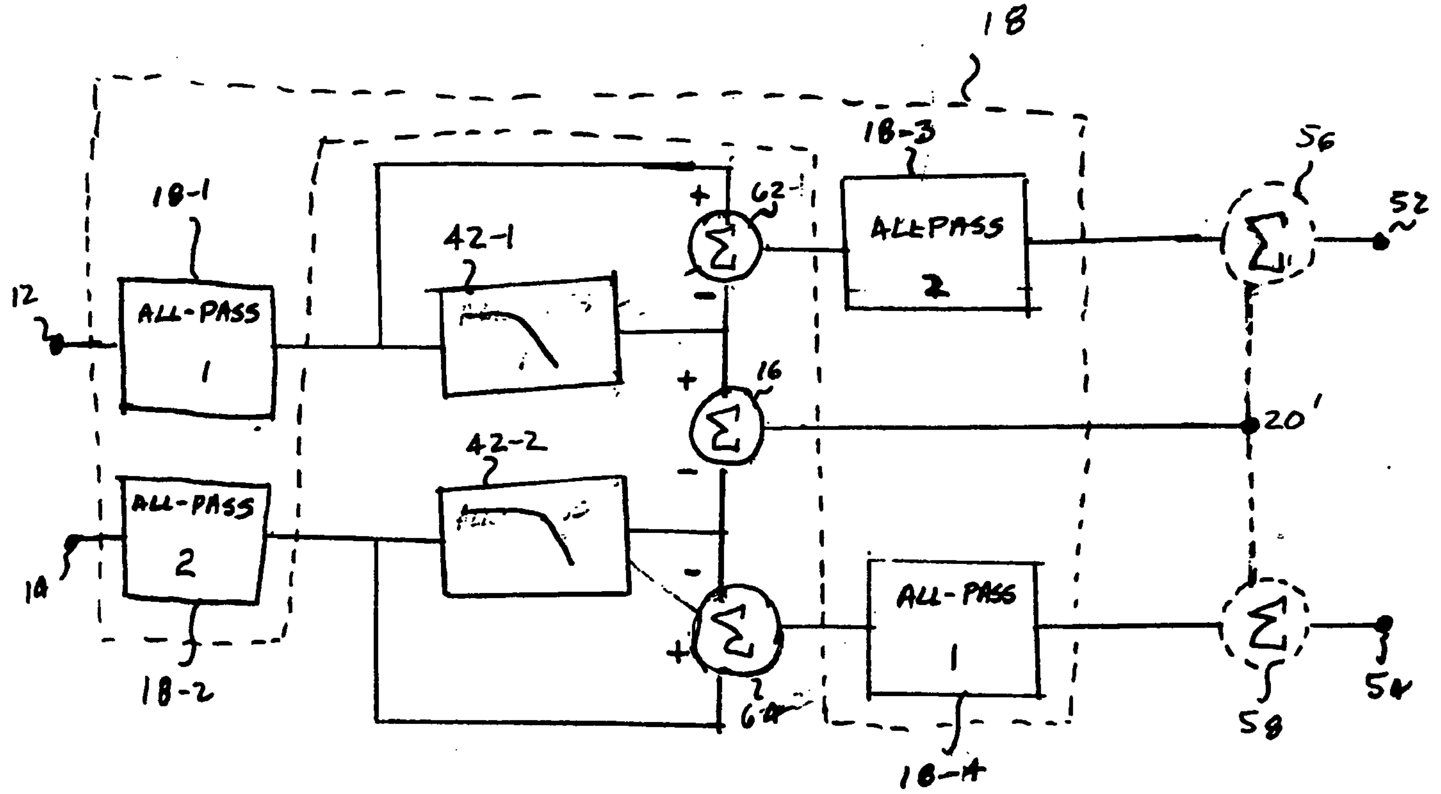

FIG. 9